

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently Amended) A system ~~evise~~ for providing spongy bone with bone substitute and/or bone reinforcing material, including wherein:

at least one perforating device (4) configured to make ~~is provided for making~~ at least one hole (5) in the spongy bone (1),

at least one flushing or rinsing device (6) configured to flush or rinse ~~is provided for flushing or rinsing~~ the hole (5) with a rinsing agent (7),

at least one supply device (8) configured to ~~is provided for permitting supply the~~ of bone substitute and/or bone reinforcing material (3) to the hole (5) in the spongy bone (1), and

at least one vacuum source (9) configured to generate ~~is provided for generating~~ a vacuum in the hole (5) in the spongy bone (1), suck the ~~for sucking~~ rinsing agent (7) into the said hole (5) in the spongy bone (1), and to suck rinsing agent (7) and tissue material out of said hole (5), wherein

said that vacuum source (9) is further configured to suck ~~provided also to generate a vacuum which is adapted for sucking and/or facilitating insertion or feeding of the bone substitute and/or bone reinforcing material (3) into the hole (5) in the spongy bone (1) after rinsing agent (7) and tissue material have been sucked out of said hole (5) and for distributing the bone substitute and/or bone reinforcing material in the hole without said material penetrating into the blood paths.~~

2. (Canceled)

3. (Currently Amended) The system ~~device~~ according to claim 1, wherein the vacuum source (9) is configured ~~provided~~ to generate a vacuum in the hole (5) of the spongy bone (1) ~~which is adapted~~ such that the bone substitute and/or bone reinforcing material (3) is sucked into said hole (5) and distributed therein without substantial portions thereof being sucked out of the hole (5).

4. (Canceled)

5. (Currently Amended) The system ~~device~~ according to claim 1, wherein a collecting device (27) is configured ~~provided~~ to collect tissue material that ~~which by the~~ ~~vacuum source (9)~~ has been sucked out of the hole (5) of the spongy bone (1) by the vacuum source (9) thereby ~~for~~ preventing tissue material from being sucked into one or more of the vacuum source (9), ~~and/or into~~ a monomer filter (28), and ~~and/or into~~ a bacteria filter (29).

6. (Currently Amended) The system ~~device~~ according to claim 1, further comprising ~~wherein~~ a monomer filter (28) configured to prevent ~~is provided for~~ ~~preventing~~ poisonous gases, which are generated during production of bone substitute and/or bone reinforcing material (3), from being discharged into the surroundings.

7. (Currently Amended) The system device according to claim 1, further comprising wherein a bacteria filter (29) configured to prevent ~~is provided for preventing~~ bacteria from getting into the hole (5) of the spongy bone (1) if a connection between the vacuum source (9) and the spongy bone (1) is opened unintentionally.

8. (Currently Amended) The system device according to claim 1, further comprising wherein a non-return valve device (26) configured ~~is provided~~ to prevent tissue material and/or any other material and/or bacteria from being sucked into the hole (5) of the spongy bone (1) if the connection between the vacuum source (9) and the hole (5) in the spongy bone (1) is opened unintentionally.

9. (Currently Amended) The system device according to claim 5, further including a wherein the non-return valve device (26) is configured to be located between the hole (5) in the spongy bone (1) and the collecting device (27).

10. (Currently Amended) The system device according to claim 5, further including a wherein the non-return valve device (26) is configured to be located between the monomer filter (28) and/or bacteria filter (29) and the hole (5) in the spongy bone (1).

11. (Currently Amended) The system device according to claim 1, further including wherein a container (18) configured to produce and/or store ~~for producing and/or storing~~ bone substitute and/or bone reinforcing material (3), wherein the

container (18) includes ~~is provided with~~ a feeding device (30) configured to feed ~~for feeding~~ bone substitute and/or bone reinforcing material (3) out of the container (18) and into the hole (5) of the spongy bone (1) at the same time the vacuum source (9) generates a vacuum therein.

12. (Currently Amended) The system ~~device~~ according to claim 1, further including wherein a container (18) configured to produce and/or store ~~for producing and/or storing~~ bone substitute and/or bone reinforcing material (3), wherein the container (18) includes ~~is provided with~~ a feeding device (30) configured to feed ~~for feeding~~ bone substitute and/or bone reinforcing material (3) into the hole (5) of the spongy bone (1) after the vacuum source (9) has generated a vacuum therein.

13. (Currently Amended) The system ~~device~~ according to claim 11, wherein the feeding device (30) is manually operable.

14. (Currently Amended) The system ~~device~~ according to claim 1, wherein the vacuum source (9) is configured ~~provided~~ to generate a vacuum of between 0.5 ~~[[0,5]]~~ bar and 0.92 ~~[[0,92]]~~ bar in the hole (5) of the spongy bone (1).

15. (Currently Amended) The system ~~device~~ according to claim 14, wherein the vacuum source (9) is configured ~~provided~~ to generate a vacuum of between 0.7 ~~[[0,7]]~~ and 0.8 ~~[[0,8]]~~ bar in the hole (5) of the spongy bone (1).

16. (Currently Amended) The system device according to claim 1, further comprising wherein a valve device (32) configured ~~is provided~~ to close or interrupt the supply of bone substitute and/or bone reinforcing material (3) to the hole (5) of the spongy bone (1) until the vacuum source (9) has generated a suitable vacuum therein, ~~and that the valve device (32) being configured to open and is provided to be opened to~~ permit supply of bone substitute and/or bone reinforcing material (3) ~~such that said material can be sucked~~ into the hole (5) of the spongy bone (1) via suction when said suitable vacuum has been measured therein.

17. (Currently Amended) The system device according to claim 1, further comprising wherein at least a first cannula or needle and a second cannula or needle (19, 20) are configured to be insertable into the spongy bone (1) such that they are simultaneously directed into the hole (5) thereof, wherein ~~and that~~ the first cannula or needle (19) is connected to a container (18) for producing and/or storing the bone substitute and/or bone reinforcing material (3) while the second cannula or needle (20) is connected to the vacuum source (9).

18. (Currently Amended) The system device according to claim 17, wherein the flushing or rinsing device (6) comprises a rinsing agent container (16) which is connected to the first cannula or needle (19) and is configured to direct ~~for leading~~ rinsing agent (7) into the hole (5) of the spongy bone (1) through said first cannula (19) and out of said hole (5) to the second cannula or needle (20).

19. (Currently Amended) The system device according to claim 18, wherein a valve device (32) is configured ~~provided~~ to either open for supply of bone substitute and/or bone reinforcing material (3) or of rinsing agent (7) through the first cannula or needle (19).

20. (Currently Amended) The system device according to claim 1, wherein the rinsing device (6) is configured to form depressions (5b) on the sides (5a) of the hole (5) by flushing or rinsing the sides (5a) of the hole (5) to remove tissue material and/or other material, and wherein the depressions may be configured to receive bone substitute and/or bone reinforcing material ~~provided to flush or rinse the sides (5a) of the hole (5) so that tissue material and other material are flushed away therefrom such that depressions (5b) are formed therein, into which the bone substitute and/or bone reinforcing material (3) can penetrate.~~

21. (Canceled)

22. (Currently Amended) The system device according to claim 21, wherein the vacuum source (9) configured to suck ~~for sucking~~ rinsing agent (7) through the hole (5) in the spongy bone (1) is the same vacuum source which is configured to suck ~~used for sucking and/or facilitating insertion or feeding of~~ bone substitute and/or bone reinforcing material (3) into said hole (5).

23. (Currently Amended) The system device according to claim 1, wherein the perforating device (4) includes ~~comprises~~ an outer tube member (11) ~~which can be~~ located at the spongy bone (1)[[.]]; and a perforating means (12), wherein the perforating means (12) is configured to be ~~which is~~ movable in said outer tube member (11) in coaxial and/or rotary direction and ~~which~~ includes and/or cooperates with a perforating member (13) for making the hole (5) in the spongy bone (1).

24. (Currently Amended) The system device according to claim 23, wherein the perforating means (12) further includes ~~comprises~~ an inner tube member (15) configured to direct ~~for leading~~ rinsing agent (7) into or out of the hole (5) in the spongy bone (1).

25. (Currently Amended) The system device according to claim [[23]] 24, wherein the outer or inner tube member (11 or 15) is connected to a vacuum source (9) for sucking rinsing agent (7) through the hole (5) in the spongy bone (1) and out of said hole through the other tube member (11).

26. (Currently Amended) The system device according to claim 1, wherein the perforating device (4) further includes ~~can be provided with or comprises~~ several units configured to make ~~for making~~ at least two holes (5) in the spongy bone (1), wherein the at least two holes (5) are configured to either extend ~~by said holes~~ extending into each other, ~~or by having such~~ be separated from one another with

spongy bone (1) remaining therebetween, wherein the spongy bone (1) remaining between the at least two holes (5) is ~~between them which can be~~ penetrated by air and provided with bone substitute and/or bone reinforcing material (3).

27. (Currently Amended) The system ~~device~~ according to claim 1, wherein the vacuum source (9) is an injector pump (21) ~~which is operated~~ operatable by a compressed medium.

28. (Currently Amended) The system ~~device~~ according to claim 27, wherein the injector pump (21) ~~is can be~~ connected to a compressed-medium device (22) which is designed as a compressed-air device and which is provided positionable in localities in or close to which the vacuum source (9) ~~shall be used~~.

29. (Currently Amended) The system ~~device~~ according to claim 28, wherein the injector pump (21) ~~is can be~~ connected to a compressed-medium device (22) with commercial gas.

30. (Currently Amended) The system ~~device~~ according to claim 28, wherein the injector pump (21) ~~is can be~~ connected to a compressed-medium device (22) which is configured to can operate said pump with a compressed-medium pressure of 4.5 – 8.5 bar.

31. (Currently Amended) The system device according to claim 1, wherein the vacuum source (9) is an electrically operated vacuum pump.

32. (Currently Amended) The system device according to claim 1, wherein the vacuum source (9) is a pump operated by gas.

33. (Currently Amended) The system device according to claim 1, wherein the vacuum source (9) is operated by hand.

34. (Currently Amended) The system device according to claim 1, wherein the spongy bone (1) is a spongy vertebra (2).

35. (Currently Amended) The system device according to claim 1, wherein the spongy bone (1) is a fracture due to osteoporosis.

36. (Currently Amended) The system device according to claim 1, wherein the spongy bone (1) is a femoral or knee fracture.

37. (Currently Amended) The system device according to claim 1, wherein the rinsing agent (7) is a sodium chloride solution.

38. (Currently Amended) The system device according to claim 1, wherein the flushing or rinsing device contains the rinsing agent, wherein the rinsing agent (7) contains a detergent.

39. (Currently Amended) The system device according to claim 1, wherein the flushing or rinsing device contains the rinsing agent, wherein the rinsing agent (7) contains at least one trombolytic substance.

40. (Currently Amended) The system device according to claim 1, wherein the flushing or rinsing device contains the rinsing agent, wherein the rinsing agent (7) is distilled water.

41. (Currently Amended) The system device according to claim 1, further including wherein a secondary device (9 and/or 30) configured to impart ~~for imparting~~ pulse like suction and/or insertion movements to the bone substitute and/or bone reinforcing material (3) into the hole (5) in the spongy bone (1).

42. (Currently Amended) The system device according to claim 1, further including wherein a secondary device (9 and/or 30) configured to impart ~~for imparting~~ reciprocating suction and/or insertion movements to the bone substitute and/or bone reinforcing material (3) into the hole (5) in the spongy bone (1).

43. (Currently Amended) The system device according to claim 1, further including wherein a secondary device (9 and/or 30) configured to impart ~~for~~ pulse like suction and/or feeding of the rinsing agent (7) through the hole (5) in the spongy bone (1).

44. (Currently Amended) The system device according to claim 1, wherein the bone substitute and/or bone reinforcing material (3) ~~sucked and/or inserted or fed into the spongy bone (1) by means of the vacuum source (9)~~ is at least one of a mineral material, a ~~or~~ substantially mineral material, ~~or~~ a ceramic material, and a ~~or~~ substantially ceramic material.

45. (Currently Amended) The system device according to claim 44, wherein the mineral material or ceramic material is a hardenable mineral or ceramic which can be brought to harden in the spongy bone (1).

46. (Currently Amended) The system device according to claim 45, wherein the mineral material or ceramic can be brought to harden by being mixed with a hardening agent ~~such as water~~.

47. (Currently Amended) The system device according to claim 44, wherein the mineral material or ceramic is selected from the group comprising calcium sulphate- α -hemihydrate, calcium sulphate- β -hemihydrate, calcium sulphate-dihydrate, calcium carbonate, α -tricalcium phosphate, hydroxyapatite, dicalcium phosphate-di-hydrate,

anhydrous dicalcium phosphate, tetracalcium phosphate, β -tricalcium phosphate, calcium deficient hydroxyapatite, monocalcium phosphate-monohydrate, mono-calcium phosphate, calcium-pyrophosphate, precipitated hydroxyapatite, carbonaceous apatite (dahlite), octa-calcium phosphate, amorphous calcium phosphate, oxyapatite, carbonate apatite and calcium aluminate.

48. (Currently Amended) The system ~~device~~ according to claim 44, wherein an X-ray contrast agent is mixed with the ceramic material.

49. (Currently Amended) The system ~~device~~ according to claim 48, wherein the X-ray contrast agent is water soluble and non-ionic.

50. (Currently Amended) The system ~~device~~ according to claim 49, wherein the water soluble, non-ionic X-ray contrast agent is selected from the group comprising iohexol, ioversol, iopamidol, iotrolan, metrizamide, iodecimol, iodecimol, ioglucol, ioglucamide, ioglundide, iogulamide, iomeprol, iopentol, iopromide, iosarcol, iosimide, iotusal, ioxilan, iofrotal and iodecol.

51. (Currently Amended) The system ~~device~~ according to claim 1, wherein the bone substitute and/or bone reinforcing material (3) ~~sucked and/or inserted or fed into the spongy bone (1) by means of the vacuum source (9)~~ is a bone cement including the components polymer and monomer, wherein the polymer and monomer which

~~components~~ harden to bone cement after mixing with each other and after said sucking and/or insertion or feeding thereof into the spongy bone (1).

52. (Currently Amended) The system ~~device~~ according to claim 51, wherein the bone substitute and/or bone reinforcing material (3) consists of mineral and/or ceramic in combination with polymer material.

53. (Withdrawn) A method for providing spongy bone with bone substitute and/or bone reinforcing material, wherein:

at least one hole (5) is made in the spongy bone (1),

the at least one hole (5) is flushed or rinsed with rinsing agent (7),

the at least one hole (5) is supplied with bone substitute and/or bone reinforcing material, and

a vacuum is generated in the hole (5) for sucking and/or facilitating insertion or feeding of the bone substitute and/or bone reinforcing material (3) into the hole (5).

54. (Withdrawn - Currently Amended) The method according to claim 53, wherein a vacuum is generated in the hole (5) for sucking rinsing agent (7) through said hole (5).

55. (Withdrawn) The method according to claim 53, wherein the rinsing agent (7) is brought to flush tissue material and other material away from the sides (5a) of the

hole (5) such that depressions (5b) are formed therein and that bone substitute and/or bone reinforcing material (3) is brought to penetrate into said depressions (5b).

56. (Withdrawn) A method for providing spongy bone with bone substitute and/or bone reinforcing material (3), which is applied or provided in at least one hole (5) in the spongy bone (1) in which a vacuum is generated, wherein the bone substitute and/or bone reinforcing material (3) is brought to pulsate during its application in the spongy bone (1).

57. (Withdrawn) The method according to claim 56, wherein reciprocating movements are imparted to the bone substitute and/or bone reinforcing material (3) during its application in the hole (5) in the spongy bone (1).

58. (Withdrawn) A method for providing spongy bone with bone substitute and/or bone reinforcing material (3), which is applied or provided in at least one hole (5) in the spongy bone (1) in which a vacuum is generated and wherein the hole (5) is flushed or rinsed with rinsing agent (7) before application therein of the bone substitute and/or bone reinforcing material (3), wherein the rinsing agent (7) is sucked pulsatingly through the hole (5) in the spongy bone (1) by generating a pulsating vacuum in said hole (5).

59. (Currently Amended) The system ~~device~~ according to claim 39, wherein the at least one trombolytic substance is chosen from heparin, streptokinase, urokinase, TPA, and other substances dissolving coagulum and thrombi, and mixtures thereof.

60. (Currently Amended) The system ~~device~~ according to claim 51, wherein the components polymer is polymethyl-methacrylate (PMMA)-type, and the components monomer is methylmethacrylate (MMA)-type.

61. (New) A system for providing spongy bone with bone substitute and/or bone reinforcing material, including:

at least one supply device (8) configured to permit the supply of bone substitute and/or bone reinforcing material (3) to a hole (5) in a spongy bone (1); and

at least one vacuum source (9) configured to generate a vacuum in the hole (5) in the spongy bone (1), and suck the bone substitute and/or bone reinforcing material (3) into the hole (5) in the spongy bone (1);

wherein the vacuum source (9) is configured to generate a vacuum of between about 0.5 bar and about 0.92 bar in the hole (5) of the spongy bone (1).